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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference F171722	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/19557	International filing date (day/month/year) 14 July 2003 (14.07.2003)	Priority date (day/month/year) 17 July 2002 (17.07.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): C07D 231/12, 231/14, 239/54, 249/12; A01N 43/54, 43/56, 43/653 and US Cl.: 544/311, 312; 548/262.8, 370.1, 375.1; 504/243, 273, 280		
Applicant ISHIHARA SANGYO KAISHA, LTD.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 22 January 2004 (22.01.2004)	Date of completion of this report 09 December 2004 (09.12.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/ US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Deepak Rao Telephone No. 571-272-1600

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.

☒ the description:

pages 1-48 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____.

☒ the claims:

pages 49-63, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of _____.

☒ the drawings:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>1-23</u>	YES
	Claims <u>24-25</u>	NO
Inventive Step (IS)	Claims <u>16-23</u>	YES
	Claims <u>1-15, 24-25</u>	NO
Industrial Applicability (IA)	Claims <u>1-25</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 24-25 lack novelty under PCT Article 33(2) as being anticipated by Chem. Abstract 114:42219f (KOUL, S.K.). The reference teaches a process to convert the nitro (NO₂) compound to the corresponding amino (NH₂), see the abstract.

Claims 1-14 lack an inventive step under PCT Article 33(3) as being obvious over US 5,281,571. US'571 teaches compounds of formula I, wherein a substituted pyrazole is attached to a substituted phenyl group. Further see the species of compound no. 158 in Table 5, col. 47-48, which shows a 1-methyl-3-aryl-pyrazole having a 4-chloro and 5-trifluoromethyl substituent. While the instant compounds do not recite that the 5-substituent of the pyrazole ring (R₁₃) is a haloalkyl, the compounds include wherein the 4-substituent (R₁₀) is haloalkyl. Therefore, the instantly claimed compounds are positional isomers of the reference compounds because they only vary in the position of the substituent as compared to the reference compound. The reference teaches that the compounds are useful as herbicides, see the abstract. It would have been obvious to one having ordinary skill in the art at the time of the invention to prepare the instantly claimed compounds because they are positional isomers of the reference compounds. One having ordinary skill in the art would have been motivated to prepare the instantly claimed compounds because such isomeric compounds are suggestive of one another and would be expected to share similar properties and therefore, the same use as taught for the reference compounds, i.e., as herbicidal agents.

Claim 15 lacks an inventive step under PCT Article 33(3) as being obvious over US 5,281,571 in view of US 5,466,663. Claim 15 is directed towards a 'method to defoliate' using the compounds and US'571 does not specifically teach the use of the compounds as defoliating agents. The secondary reference, US'663 in the analogous art, teaches that compounds that are useful as herbicides are also useful as defoliating agents, for example, for cotton and potato, see the teachings in col. 10, lines 38-41. Therefore, one of ordinary skill in the art in view of the teachings of US'663, would have been motivated to modify the primary reference and use the herbicidal agents in a method to defoliate. Such modification would have been obvious because the skilled artisan would have expected similar activity for the herbicidal agents.

Claims 24-25 lack an inventive step under PCT Article 33(3) as being obvious over Chem. Abstract 114:42219f (KOUL, S.K.). The reference teaches a process to convert a nitro compound to the corresponding amino compound, see the abstract. It would have been obvious to one having ordinary skill in the art to use the reaction for any compound with the reasonable expectation of obtaining corresponding amino compounds.

Claims 1-23 meet the criteria of novelty set out in PCT Article 33(2), because the prior art does not teach the instant compounds, see US 5,281,571 from which the instant compounds differ by having substituents at different positions than those disclosed in the reference.

Claims 1-25 meet the criteria set out in PCT Article 33(4), because the compounds are disclosed to be useful as herbicidal agents, and thus meet the criteria of industrial applicability because the subject matter claimed can be made or used in industry.

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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 14 and 24 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claim is indefinite for the following reason(s):

Claim 14, lines 2-3, the phrase "or any referenced in the text" is unclear, confusing and therefore, makes the claim indefinite. A claim to be proper, should contain all the limitations within the claim or should refer to another claim which contains such limitations.

Claim 24 does not provide the definitions of the variables and does not refer to any of the previous claims.